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AMSAT NEWS SERVICE
ANS-339
The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to: ans-editor [at] amsat.org

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see: https://mailman.amsat.org/postorius/lists/ans.amsat.org/

In this edition:

* New Senior Leadership Team at ARISS
* FO-29 & FO-99 Operation Schedules For December 2021
* VUCC Awards-Endorsements for December 1,2021
* Discussion of PCSAT (NO-84) lifetime: Debris and Orbital Decay
* ARISS News
* Upcoming Satellite Operations
* Hamfests, Conventions, Maker Faires, and Other Events
* Satellite Shorts From All Over

ANS-339 AMSAT News Service Weekly Bulletins

To: All RADIO AMATEURS
From: Radio Amateur Satellite Corporation
712 H Street NE, Suite 1653
Washington, DC 20002

DATE 2021 Dec 05

New Senior Leadership Team at ARISS

In May 2020, Amateur Radio on the International Space Station, Inc. (ARISS-USA) created a new 501 (c) (3) non-profit charitable organization to enhance and expand ARISS initiatives in the USA. To support the variety of new functions and roles of this organization, ARISS-USA has augmented its Senior Leadership team by selecting five new members.

Martin Schulman, Associate Director: In this role, Mr. Schulman will work with the Executive Director, delegating routine tasks, enhancing perspective, and serving as a backup to the executive director when necessary. He will also serve as a member of the ARISS-USA board. Mr. Schulman has over 30 years of experience in telecommunications, programming, and computer security, and is also an active volunteer with the Sterling Park Amateur Radio Club in Sterling, Virginia.

Tom Henderson, Secretary: In this role, Mr. Henderson will have the primary duty of ensuring that the internal matters of the organization run smoothly and efficiently. He will record and keep the minutes of all meetings of the Board. Mr. Henderson also serves as the custodian of the ARISS-USA Minute Book and additional books and records as the Board may direct. Mr. Henderson’s profession is IT infrastructure and systems security research. He is also current president of the Bloomington, Indiana Amateur Radio Club.

Jena Dunham, Director of Volunteer Resources: Ms. Dunham will be responsible for the recruitment,

basic training, and retention of volunteers needed to complete ARISS-USA's mission. She will also maintain the volunteer database, manage subscriptions to the mailing lists, and generate policies regarding volunteer conduct. Ms. Dunham is an experienced nurse practitioner in the state of Kansas and has served as a volunteer for 4-H and the Stormont Vail hospital system.

Rita DeHart, Director of Public Engagement: Ms. DeHart will be responsible for raising public awareness of the ARISS program. This includes the management of all communication methods with the public (including, but not limited to, website, press releases, articles, and all forms of social media). She will also be responsible for the management of conference participation. Ms. DeHart has 46 years in the electric power industry and is an active member of the Tampa Amateur Radio Club.

Randy Berger, Director of Engineering: Mr. Berger is responsible for planning and executing the development of hardware and software systems that will enhance the primary goals of ARISS-USA, specifically STEM education and backup communications for crew members on human spaceflight vehicles. Mr. Berger's scope of engineering involvement will support the efforts of ARISS and includes everything within the engineering purview of ARISS, such as ISS, Lunar Gateway, satellite developments, and future government and commercial space ventures. International collaboration and coordination on systems and engineering strategies will be paramount in this role along with the understanding of national and international collaboration laws and constraints (such as ITAR) that is critically important in this role. Mr. Berger is an experienced technology officer and has been involved with amateur radio since the 1970s.

The new team members will join veteran leaders Frank Bauer (Executive Director), Carol Jackson (Treasurer), and Kathy Lamont (Director of Education). The Senior Leadership Team will work closely with long-time ARISS US Delegates Rosalie White (ARRL) and Dave Taylor (AMSAT).

The Director of Business Development and Director of Operations positions currently remain vacant.

[ANS thanks Rita DeHart, KC4RMS, ARISS-USA Director of Public Engagement for the above information]

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FO-29 will be fully sunshine from January 29, next year. It is hoped that the transponder can operate normally during the period of full illumination.

The December operating schedule for NEXUS(FO-99) may be found at: https://www.jamsat.or.jp/?p=1678

(ANS thanks Akira Kaneko, JA1OGZ, and JAMSAT for the above information)

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getting almost daily Close approach alerts on PCSAT (is a high orbit, originally 800 km high). Alert miss-distances seem to be on the order of 200 to 500 meters. Example Alert below at end.
Another day in space (after 20 years for PCSAT):
Semi-operational: http://aprs.org/pcsat.html
Live downlink (W3ADO-1): http://www1.findu.com/cgi-bin/pcsat.cgi
One minute serial nos (T#xxx), suggest a wake from 1 to 8 minutes per orbit.
PCSAT is unique in that is has no CPU or Operating system. It is just two off-the-shelf KPC9612 TNC's (chips in sockets, etc) and uses their built-in sysop features for telemetry, command and control.
Follow on APRS satellites page: http://aprs.org/sats.html"From: ...space-track.org>
Date: Tue, Nov 30, 2021 at 2:40 PM
Subject: PCSAT Close Approach Notification
The United States 18th Space Control Squadron has identified a close approach between PCSAT (SCC #26931) and SCC #30230
Time of Closest Approach: 2021-335T02:20:51(UTC)
Probability of Collision (Pc): 0.0003769653
Overall miss distance: 338.0m
<end snip>

Bob follows up in a second post: "Joe, KM1P reminded us of the decay of NO-84 soon. It would be nice to get an assessment of the remaining lifetimes of the remaining APRS satellites listed on http://aprs.org/sats.html. Since I retired (with health issues), I wont be building any replacements and have not been paying attention."

Mike Rupprecht, DK3WN, has provided a decay prediction that has NO-84 decaying from orbit on December 26, 2021 See:https://bit.ly/3xGWFLP

We still have some live left for NO-84 (PSAT), Cat ID 40654.

Ray Hoad also provided a good illustration: "Based on past experience, when an amateur satellite’s drag rises above the 0.01 magnitude, the satellite is usually getting close to reentry. Some have climbed back up for a while. But, as a rule of thumb, 0.01 drag is the point I start watching a satellite’s drag. Almost all amateur satellites have a mean motion of at least 16 when they decay.

The current TLE shows NO-84 (PSAT), Cat ID 40654, with a drag of 0.00320060 and a mean motion of 15.99945301. Getting close.

For example, here are the drag values for a few satellites the day they deorbited:

SAT	Cat ID	drag	Mean Motion
NEPALISAT1	44331	0.04661449	16.30483242
RAVAANA	44329	0.04382427	16.28919678
UGUISU	44330	0.06186538	16.33294840
CP9	44360	0.01594744	16.12399308
TW-1C	40926	0.05243455	16.31196197
MO-105	44832	0.11453400	16.41416157
MO-106	44830	0.14504533	16.46538413
ENDURO SAT ONE	43551	0.12819970	16.45548142
EQUISAT	43552	0.10316869	16.43170683
SWAMPSAT	45115	0.19123998	16.36852634
PWSAT 2	43814	0.25888781	16.21683976

Per above, several have hung on for another order of magnitude of
drag. It would be very difficult to estimate a deorbit time based solely on drag. But, all have had a mean motion in excess of 16 when they decayed."

[ANS thanks Bob Brununga, WB4APR Mike Rupprecht, DK3WN, and Ray Hoad, WA5QGD, AMSAT-NA Orbital Elements Manager for the above information]

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worth it!

https://tinyurl.com/ANS-GOLF

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[ANS thanks Paul Overn, KE0PBR, AMSAT Events page manager, and Clint Bradford, K6CLS for the above information]

Satellite Shorts From All Over

+ Please continue to use AO-91 and AO-92 only when the satellites are illuminated by the sun. AO-92 telemetry and repeater are intermittent. AO-91 telemetry is turned off but the FM repeater works when the satellite is in the sun. Reminder: Satellite in sun is approximately equal to user in daytime. For exact information on eclipse vs. illumination, check software such as SatPC32. (ANS thanks Burns Fisher, WB1FJ, AMSAT operations, for the above information)

+ The TOLIMAN Telescope. A semi-privately funded space telescope is being planned to search the Alpha Centauri system for Earth-like planets. A transliteration of the ancient Arabic name for our Sun’s nearest stellar neighbor (and the official IAU name for Alpha Centauri B), Toliman could launch as soon as 2023 to observe Alpha Centauri A and B for the tell-tale wobbles that would confirm a suspected habitable-zone exoplanet orbiting Alpha Centauri A (paper) and search for more. https://bit.ly/3xOeWXr (ANS thanks the Orbital Index for the above information)

+ Japan to recruit first new astronauts in 13 years to support Artemis program. Japan’s space agency is set to recruit astronaut candidates for the first time in 13 years as part of efforts to support the NASA-led Artemis lunar exploration program. The Japan Aerospace Exploration Agency (JAXA) announced the recruitment plan Nov. 19, saying successful candidates would be assigned to work long-term at the International Space Station (ISS), the Japanese experiment module “Kibo” attached to ISS, or NASA’s lunar orbit outpost Gateway. JAXA, under an agreement with NASA, is set to provide several capabilities for the Gateway’s International Habitation module (I-Hab), which will provide the heart of Gateway life support capabilities and additional space where crew will live, work, and conduct research during Artemis missions. https://bit.ly/3EmNKl2 (ANS thanks Park Si-soo of Space News for the above information.)

+ Northrop Grumman Corporation has signed a Space Act Agreement with NASA under the Commercial Low-Earth Orbit Development program for $125.6 million to design a safe, reliable and cost-effective commercial free-flying space station in low Earth orbit (LEO). Northrop Grumman's commercial space station design will use current flight systems and advanced crew-focused technology under development that allows for rapid deployment with modular expansion to meet the growing needs of the space economy. "Under this agreement, the Northrop Grumman team will deliver a free flying space station design that is focused on commercial operations to meet the demands of an expanding LEO market," said Steve Krein, vice president, civil and commercial space, Northrop Grumman. "Our station will enable a smooth transition from International Space Station-based LEO missions to sustainable commercial-based missions where NASA does not bear all the costs, but serves as one of many customers." https://bit.ly/3DkhOg7 (ANS thanks SpaceRef for the above information.)

+ The December PDF of the GEO Newsletter weather satellite publication produced by the Group for Earth Observation is now available for free download. The Group for Earth Observation's aim is to enable amateur reception of weather and earth imaging satellites that are in orbit or planned for launch in the near future. Membership of GEO is free.
This edition includes:
• The ISS Sally Ride EarthKAM
• Sea Ice forming in Kuskokwim Bay
• La Palma Volcano: How Satellites help us Monitor Eruptions
• Currently Active Weather Satellites and Frequencies
Download the GEO Newsletter from
http://leshamilton.co.uk/GEO/newsletter.htm
(ANS thanks Southgate Amateur Radio News for the above information.)

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In addition to regular membership, AMSAT offers membership to:

* Societies (a recognized group, clubs or organization).

* Primary and secondary school students are eligible for membership at one-half the standard yearly rate.
* Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status.
* Memberships are available for annual and lifetime terms.

Contact info [at] amsat.org for additional membership information.

73 and remember to help Keep Amateur Radio in Space!

This week's ANS Editor, Jack Spitznagel, KD4IZ
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